

# BIOLOGIA CENTRALI-AMERICANA.

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## ZOOLOGIA.

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### Class INSECTA.

### Order LEPIDOPTERA.

### Suborder HETEROCERA (*continued*).

### Fam. EUSCHEMIDÆ.

In the New World this family is very poorly represented; from our region we only know of four species, representing two genera.

#### PHÆOCHLÆNA.

*Phæochlæna*, Hübner, Verz. bek. Schmett. p. 176; Walker, Cat. ii. p. 467 (part.); Butler, Trans. Ent. Soc. Lond. 1878, p. 62.

The type of this genus is *P. tendinosa*, Hübn., from Central and South America; three species are now known from our country.

#### 1. *Phæochlæna tendinosa*.

*Phæochlæna tendinosa*, Hübn. Zutr. Samml. exot. Schmett. i. p. 18. no. 45, ff. 89, 90; Verz. bek. Schmett. p. 176; Walk. Cat. ii. p. 467<sup>1</sup>; Butl. Trans. Ent. Soc. Lond. 1878, p. 62.

*Hab.* MEXICO, Jalapa (*coll. Schaus*); HONDURAS<sup>1</sup>; GUATEMALA, Cerro Zunil 4000 to 5000 feet (*Champion*).—COLOMBIA, Bogota; LOWER AMAZONS, Pará.

This common South-American species appears to be very rare in our country. Mr. Champion only sent a single specimen from Guatemala.

#### 2. *Phæochlæna solilucis*. (Tab. XLI. figg. 9, ♂; 10, ♀.)

*Phæochlæna solilucis*, Butl. Trans. Ent. Soc. Lond. 1878, p. 62<sup>1</sup>.

*Hab.* PANAMA, Volcan de Chiriqui (*Arcé, Ribbe*), Bugaba 800 to 1500 feet (*Champion*).—ECUADOR; UPPER AMAZONS<sup>1</sup>; EAST PERU.

A beautiful species, quite unlike any other known to me. The specimens from the State of Panama, from which our figures are taken, agree well with the Amazonian type.



3. **Phæochlæna cytheris**, sp. n. (Tab. XLI. fig. 11, ♀.)

*Female*. Primaries deep black, the veins close to the base pale cream-colour, a large oval cream-coloured spot about the middle and a very small similarly-coloured spot close to the apex; secondaries creamy-white, broadly bordered with black; head and thorax black; abdomen brownish-black above; dusky white beneath; antennæ black; palpi and tegulæ bright orange; legs black above, white beneath. Expanse  $1\frac{1}{4}$  inch.

*Hab.* MEXICO, Orizaba (*H. J. Elwes*), Cuesta de Misantla (*M. Trujillo*); COSTA RICA, Caché (*Rogers*).

*P. cytheris* is quite distinct from any described species; it comes nearest *P. cingulina* from Ecuador. The Costa-Rican specimen is figured.

SIMENA.

*Simena*, Walker, Cat. vii. p. 1728 (1856).

*Cosmetodes*, Guenée, Sp. gén. des Lép. x. p. 225 (1857).

*Simena* and *Cosmetodes* were founded by their authors upon the same species, the types of each being from Mexico. The antennæ of the males are very deeply pectinated, those of the females simple, the two sexes otherwise closely resembling each other.

1. **Simena luctifera**. (Tab. XLI. fig. 12, ♂.)

*Simena luctifera*, Walk. Cat. vii. p. 1728 (♂)<sup>1</sup>.

*Cosmetodes joaria*, Guen. Sp. gén. des Lép. x. p. 225 (♂ ♀)<sup>2</sup>.

*Melandia æquinoctialis*, Boisd. Lép. Guat. p. 77<sup>3</sup>.

*Hab.* MEXICO<sup>1 2</sup>, Cordova (*Höge, Rümeli*), Jalapa, Coatepec (*coll. Schaus*), Cuesta de Misantla (*M. Trujillo*), Atoyac in Vera Cruz (*H. H. Smith*); GUATEMALA<sup>3</sup>, in the city (*Rodriguez*), Cubilguitz, Senahu, and Panima in Vera Paz (*Champion*); HONDURAS<sup>3</sup> (*Schenck, mus. Staudinger*); COSTA RICA (*Van Patten, mus. D.*), Volcan de Irazu, Caché (*Rogers*); PANAMA, Chiriqui (*Arcé, mus. D.*), Volcan de Chiriqui 2000 to 3000 feet (*Champion*).

We are indebted to Mons. C. Oberthür for kindly lending us the type of *Melandia æquinoctialis*, Boisd.; it does not differ from Walker's species. In Guatemala and Costa Rica this is a common insect, but in the State of Panama it appears to be very rare, Mr. Champion only having met with one example; from Mexico we have only a few specimens. A Mexican example is figured.

Fam. URANIIDÆ.

The characters of this family are fully described by Prof. Westwood in his "Observations on the Uraniidæ," Trans. Zool. Soc. x. pp. 507-521 (1879).



## URANIDIA.

*Uranidia*, Westwood, Trans. Zool. Soc. x. p. 521 (1879).

Prof. Westwood in his Monograph enumerated eight species of this genus, several of which are of very doubtful value. Some of its members have the remarkable habit of migrating in large numbers.

An important paper on the life-history of the Cuban *U. boisduvali* (*fernandinæ*, MacL.) has been published by Mr. MacLeay, Trans. Zool. Soc. i. pp. 180 *et seq.*

1. ***Uranidia fulgens***. (Tab. XLI. fig. 16.)

*Urania fulgens*, Walk. Cat. i. p. 5<sup>1</sup>; Boisd. Lép. Guat. p. 77<sup>2</sup>.

*Cydimon fulgens*, Guen. Sp. gén. des Lép. ix. p. 9<sup>3</sup>; Boisd. Rev. et Mag. Zool. 1874, p. 41<sup>4</sup>.

*Uranidia fulgens*, Westw. Trans. Zool. Soc. x. p. 522<sup>5</sup>.

*Hab.* MEXICO<sup>1 2 5</sup>, Cordova (*Rümeli*), Coatepec (*Brooks*); GUATEMALA<sup>2 4 5</sup>, in the city (*Rodriguez*), Zapote, Cerro Zunil 4000 feet (*Champion*); HONDURAS, San Pedro (*G. Whitely, mus. D.*), Ruatan Island (*Gaumer*); NICARAGUA, Chontales (*Belt*); COSTA RICA (*Van Patten, mus. D.*), Rio Sucio, Volcan de Irazu 6000 to 7000 feet (*Rogers*); PANAMA, Bugaba 800 to 1500 feet, Volcan de Chiriqui 2000 to 4000 feet (*Champion*).—COLOMBIA<sup>2 3 4 5</sup>, Bogota<sup>1</sup>.

Respecting this species Mr. Schaus writes me as follows:—"I found *Urania fulgens* extremely abundant at Jalapa during certain seasons, and for a fortnight or three weeks at a time a perfect succession of specimens would be flying daily from the north to the south, but difficult of capture. In Vera Cruz (the town) I secured a large number at night: between midnight and two A.M. they would be attracted by the lights, and would settle on the white walls of the houses, with their wings spread out, and would thus remain motionless. I consider this fact very remarkable, as I had always thought that *U. fulgens* was only a day-flier; but evidently it must continue its migrations at night also, or does it return at night to the north? In the daytime I have always seen them flying in the one direction."

Boisduval states<sup>2</sup>:—"Cette espèce est tellement abondante dans quelques contrées du Mexique, que l'on pourrait souvent en prendre par centaines. Il paraît qu'à certaines époques de l'année, elle émigre par bandes nombreuses. C'est probablement lorsque les chenilles ont dépouillé tous les arbres d'une localité, que, par un instinct naturel, elles vont chercher ailleurs un berceau pour leur progéniture."

Migrations of large numbers of examples of this species were also observed by Mr. Champion in Chiriqui; and others have been recorded from the Isthmus of Panama (*cf.* 'Nature,' viii. p. 536), the specimens in this case travelling from east to west, in the months of August and September.

Mr. Salvin saw numbers of this *Urania* flying daily during his short visit to the



Isthmus of Panama in May 1873: specimens were first observed by him on approaching the port of Colon, where they were flying close over the water across the Bay in a southerly direction; and subsequently when he was staying at Obispo Station couples of this species were nearly always in sight, from early morning till dusk, flying high over the trees in a south-easterly direction. None were observed to enter the houses at night, though on several occasions examples of very many species came to light.

The large series of examples before me show a considerable amount of variation in the colour and width of the bands crossing the wings. The females are generally larger than the males. The majority of the specimens from Colombia in my own collection are more richly coloured than those from Central America. We figure a Mexican specimen.

## 2. *Uranidia cacica*.

*Cydimon cacica*, Guen. Sp. gén. des Lép. ix. p. 8 (♀) <sup>1</sup>; Boisd. Rev. et Mag. Zool. 1874, p. 36 <sup>2</sup>.

*Uranidia cacica*, Westw. Trans. Zool. Soc. x. p. 521 <sup>3</sup>.

*Hab.* MEXICO, Acapulco <sup>1 2 3</sup>.

I have not seen the type of this insect, but think it most likely that it will prove to be inseparable from *U. fulgens*. The only recorded specimen is the one described by Guenée.

## MANIDIA.

*Manidia*, Westwood, Trans. Zool. Soc. x. p. 527 (1879).

Of the eight species included by Prof. Westwood in this genus only one is as yet known to inhabit Central America.

## 1. *Manidia lunus*.

*Phalena lunus*, Linn. Syst. Nat. ed. xii., i. 2, p. 810 <sup>1</sup>; Clerck, Icon. t. 52. ff. 3, 4 <sup>2</sup>.

*Urania lunus*, Godt. Encycl. Méth. ix. p. 711 <sup>3</sup>.

*Nyctalemon lunus*, Walk. Cat. i. p. 8 <sup>4</sup>.

*Sematura lunus*, Boisd. Lép. Guat. p. 76 <sup>5</sup>.

*Manidia lunus*, Westw. Trans. Zool. Soc. x. p. 527 <sup>6</sup>.

*Sematura actæon*, Feld. Reise der Nov., Lep. t. 121. fig. 5 <sup>7</sup>.

*Papilio empedocles*, Cram. Pap. Exot. iii. p. 11, t. 199. ff. A, B <sup>8</sup>.

*Urania empedocles*, Godt. Encycl. Méth. ix. p. 711 <sup>9</sup>.

*Sematura empedocles*, Guen. Sp. gén. des Lép. ix. p. 19 <sup>10</sup>.

*Mania empedoclaria*, Hübn. Verz. bek. Schmett. p. 290 <sup>11</sup>.

*Lars Heroica empedoclaria*, Hübn. Samml. exot. Schmett. i. t. 202. ff. 3, 4 <sup>12</sup>.

*Hab.* MEXICO, Cuesta de Misantla (*M. Trujillo*), Teapa in Tabasco (*H. H. Smith*); GUATEMALA <sup>5</sup>, slope of the Volcan de Santa Maria (*Richardson*), San Isidro, Pantaleon, Chacoj in Vera Paz (*Champion*); HONDURAS <sup>6</sup> (*Dyson* <sup>4</sup>); NICARAGUA, Chontales (*Belt*); COSTA RICA (*Boucard, in mus. D.*; *Van Patten*); PANAMA, Chiriqui (*Arcé, mus. D.*),



Volcan de Chiriqui 2000 to 8000 feet (*Champion*).—COLOMBIA, Antioquia; VENEZUELA<sup>7</sup>; GUIANA<sup>5 10</sup>, Surinam<sup>3 8 9</sup>; UPPER and LOWER AMAZONS; BRAZIL<sup>3 4 5 6</sup>; TRINIDAD.

We have a series of thirty-one examples of this species before us, showing a considerable amount of variation in colour in the males, and to a less degree in the females. Mr. Kirby states (Proc. Roy. Dubl. Society, 1880, p. 340) that *Sematura selene*, Guen., is very closely allied to *M. lunus* (Linn.), especially as regards the females; but may be distinguished by the pale inner submarginal line of the fore wings being more dentated. I have not seen the type of *Sematura selene*; but I think it extremely doubtful if it is specifically distinct from *M. lunus*, as in a long series of the latter the submarginal band on the primaries varies a good deal in shape. I have specimens of *M. lunus* before me from Pará, the locality given by Guenée for his *Sematura selene*.

### CORONIDIA.

*Coronidia*, Westwood, Trans. Zool. Soc. x. p. 528 (1879).

Prof. Westwood divided *Coronidia* into four sections. Of these I believe 2 and 3 to be generically distinct, as the males of the species belonging to them, so far as I am aware, do not possess a silky black patch on the secondaries, nor a tuft of hairs on the inner margin of the primaries beneath, and they also have the antennæ simple.

#### Sect. 1. *Alis posticis cæruleo fasciatis*, Westw.

In this section of the genus Prof. Westwood placed five species, two of them being from Central America.

#### 1. *Coronidia hysudrus*.

*Coronis hysudrus*, Hopff. Neue oder wenig. bek. Schmett. Heft 2, p. 4, t. 3. ff. 4, 5 (1856)<sup>1</sup>.

*Coronidia hysudrus*, Westw. Trans. Zool. Soc. x. p. 532<sup>2</sup>.

*Hab.* MEXICO<sup>1 2</sup>, Jalapa (*coll. Schaus*); GUATEMALA, Las Mercedes 3000 feet, Volcan de Atitlan 2500 to 3500 feet (*Champion*); PANAMA, Chiriqui (*Trötsch, Ribbe, in mus. Staudinger*).—BRAZIL<sup>1 2</sup>.

The male of this species closely resembles *C. erecthea*, Westw.; but it has the blue on the secondaries joined to the oval patch of rough black scales, and the tuft of hairs on the inner margin of the underside of the primaries luteous. We have six specimens before us—one female from Mexico, two males and a female from Guatemala, and a male and female from Chiriqui; the females do not differ from Hopffer's figures, except that they have the antennæ pectinated as in *C. boreada*, Westw.

#### 2. *Coronidia hyphasis*.

*Coronis hyphasis*, Hopff. Neue oder wenig. bek. Schmett., Heft 2, p. 3, t. 3. ff. 2, 3<sup>1</sup>.

*Coronidia hyphasis*, Westw. Trans. Zool. Soc. x. p. 532<sup>2</sup>.

*Hab.* MEXICO<sup>1 2</sup>; PANAMA, Chiriqui (*Trötsch, in mus. Staudinger*).



The male of this species differs from the corresponding sex of all others of the genus known to me in having the tuft of hairs on the underside of the inner margin of the primaries black instead of yellowish. Hopffer's figure represents a female; the male has considerably more blue on the secondaries above.

Sect. 2. *Alis posticis rufo fasciatis*, Westw.

3. **Coronidia egina.**

*Coronis egina*, Boisd. in Règn. Anim., ed. Crochard, Atlas, Ins. t. 145. f. 4<sup>1</sup>; Walk. Cat. i. p. 38<sup>2</sup>; Chenu, Encycl. d'Hist. Nat., Pap. i. p. 234, f. 399<sup>3</sup>; Guen. Sp. gén. des Lép. ix. p. 21, Uran. t. 1. f. 3 (♂)<sup>4</sup>.

*Coronidia egina*, Westw. Trans. Zool. Soc. x. p. 533<sup>5</sup>.

*Hab.* MEXICO<sup>4</sup>, Coatepec (*coll. Schaus*); PANAMA, Bugaba (*Champion*).—GUIANA, Essequibo River; BRAZIL<sup>2 3 4 5</sup>.

The specimen captured by Mr. Champion in Chiriqui agrees well with Guenée's figure, which was taken from a Mexican example. It is quite possible that the Central-American examples will prove to be specifically distinct from those from South America, but at present I have not sufficient material to be able to form a decided opinion. If this should ultimately prove to be the case, I propose the name *gueneei* for the Central-American insect.

4. **Coronidia canace.** (Tab. XLI. fig. 13, ♀.)

*Coronis canace*, Hopff. Neue oder wenig. bek. Schmett. Heft 2, p. 4, t. 3. f. 6<sup>1</sup>.

*Coronidia canace*, Westw. Trans. Zool. Soc. x. p. 533<sup>2</sup>.

*Hab.* GUATEMALA (*Salvin, mus. D.*), Coban in Vera Paz (*Conradt*); COSTA RICA (*Boucard, mus. D.*); PANAMA, Chiriqui (*Arcé, mus. D.*), Volcan de Chiriqui 2000 to 3000 feet (*Champion; Ribbe, mus. Staudinger*).—ECUADOR; BRAZIL<sup>1 2</sup>.

Varies slightly in the colour of the red band on the secondaries, this band being brighter in some specimens than in others. We figure a female example from Chiriqui.

5. **Coronidia nicaraguana.**

*Coronidia nicaraguana*, Westw. Trans. Zool. Soc. x. p. 534, t. 88. fig. 3<sup>1</sup>.

*Hab.* NICARAGUA (*Belt*<sup>1</sup>).

The only specimen known to me of this species is the type in the Oxford Museum.

6. **Coronidia æola.**

*Coronidia æola*, Westw. Trans. Zool. Soc. x. p. 535, t. 88. ff. 1, 2<sup>1</sup>.

*Hab.* GUATEMALA<sup>1</sup>.—BRAZIL<sup>1</sup>; ANTILLES<sup>1</sup>.

We include this species in our fauna upon the authority of Prof. Westwood, who states that there is a specimen of it from Guatemala in the Oxford Museum.



Sect. 3. *Alis posticis fulvo fasciatis*, Westw.7. **Coronidia echenais.** (Tab. XLI. fig. 15, ♀.)

*Coronis echenais*, Hopff. Neue oder wenig. bek. Schmett. Heft 2, p. 5, t. 4. f. 1<sup>1</sup>.

*Coronidia echenais*, Westw. Trans. Zool. Soc. x. p. 536<sup>2</sup>.

*Hab.* MEXICO<sup>1 2</sup>, Jalapa (*Höge*), Coatepec (*coll. Schaus*).

Our Jalapa specimen is almost identical with Hopffer's figure of the male, but it is rather darker in colour.

8. **Coronidia biblina.**

*Coronidia biblina*, Westw. Trans. Zool. Soc. x. p. 537, t. 88. f. 7<sup>1</sup>.

*Hab.* MEXICO, Coatepec (*Brooks*); NICARAGUA<sup>1</sup>.—VENEZUELA<sup>1</sup>.

A worn male specimen from Coatepec is apparently referable to *C. biblina*, but it is considerably smaller than the insect delineated by Prof. Westwood.

9. **Coronidia japet.**

*Coronis japet*, Boisd. in Règne Anim., ed. Crochard, Ins. t. 145. f. 3<sup>1</sup>; Chenu, Encycl. d'Hist. Nat., Pap. i. p. 234, f. 400<sup>2</sup>; Walk. Cat. i. p. 38<sup>3</sup>.

*Coronidia japet*, Westw. Trans. Zool. Soc. x. p. 537, t. 88. f. 6<sup>4</sup>.

*Hab.* MEXICO, Coatepec (*coll. Schaus*); GUATEMALA, San Gerónimo (*Champion*); NICARAGUA<sup>4</sup> (*Belt*); PANAMA, Volcan de Chiriqui 2000 to 3000 feet (*Champion*).—COLOMBIA, Antioquia; VENEZUELA<sup>3</sup>; BRAZIL<sup>1 2 3 4</sup>.

In our specimens the pale bands crossing the primaries are darker in colour than in Prof. Westwood's figure. According to Guenée (*Sp. gén. des Léop. ix. p. 22*), *C. japet*, Boisd., is the female of *C. leachii*, Godt.

10. **Coronidia interlineata.** (Tab. XLI. fig. 17, ♀.)

*Coronis interlineata*, Walk. Cat. i. p. 38<sup>1</sup>; Butl. Ill. Lep. Het. Brit. Mus. i. p. 59, t. 3. f. 1 (nec Westw.).

*Hab.* COSTA RICA (*Van Patten*).

Our Costa-Rican specimen does not differ from Walker's type, the locality for which was unknown<sup>1</sup>. The insect figured by Prof. Westwood as *C. interlineata* (Trans. Zool. Soc. x. t. 88. f. 8) belongs to a different species, and I propose the name *westwoodi* for it: it is said to have come from Bogota or Venezuela.

11. **Coronidia genevana.**

*Coronidia genevana*, Westw. Trans. Zool. Soc. x. p. 539, t. 88. f. 10<sup>1</sup>.

*Hab.* MEXICO (*in mus. Genev.*<sup>1</sup>), Coatepec (*coll. Schaus*); GUATEMALA (*Boucard, in mus. D.*).



### 12. *Coronidia ribbei*, sp. n. (Tab. XLI. fig. 14, ♀.)

*Female*. Primaries dark brown, crossed from the costal to the inner margin by many waved brown lines, a wide pale yellowish-brown band crossing the wing from the costal to the inner margin close to the anal angle, the outer margin broadly bordered with pale brown, the latter slightly dentated near the apex; secondaries dark brown, with a wide pale yellow band extending from the costal margin near the apex to the inner margin above the anal angle, the outer margin deeply dentated; the underside pale yellow, the primaries with a rather large black spot at the end of the cell, and crossed from the costal to the inner margin by two wide waved black bands, the secondaries crossed only by a central black band, the outer band being broken up into very fine lines: head, thorax, abdomen, antennæ, and legs brown; the palpi brown, with the third joint black. Expanse 2 inches.

*Hab.* PANAMA, Chiriqui (*Ribbe, in mus. Staudinger*).

A single specimen only of this very distinct species has been communicated by Dr. Staudinger; its nearest ally appears to be *C. genevana*, Westw.

### 13. *Coronidia ocyclus*.

*Coronis ocyclus*, Boisd. Lép. Guat. p. 76<sup>1</sup>.

*Coronidia ocyclus*, Westw. Trans. Zool. Soc. x. p. 539<sup>2</sup>.

*Coronis dutreuxi*, Deyr. Rev. et Mag. Zool. 1874, t. 8. f. 3<sup>3</sup>.

*Hab.* ? MEXICO<sup>1 2</sup>; GUATEMALA<sup>1 2</sup>; COSTA RICA<sup>3</sup>.

We are indebted to Mons. C. Oberthür for kindly lending us the type of *C. ocyclus*, Boisd.; it proves to belong to the same species as *C. dutreuxi*, Deyr.

#### Sect. 4. *Alis posticis haud fasciatis*, Westw.

### 14. *Coronidia leachii*.

*Agarista leachii*, Godt. Encycl. Méth. ix. p. 803<sup>1</sup>.

*Coronis leachii*, Guérin, Icon. Règne Anim., Ins. p. 493, t. 83. f. 3<sup>2</sup>; Gray, in Griffith's Anim. Kingd., Ins. p. 596, t. 53. f. 3<sup>3</sup>; Boisd. Sp. gén. des Lép. i. t. 14 (10 B), f. 2<sup>4</sup>; Walk. Cat. i. p. 39<sup>5</sup>; Guen. Sp. gén. des Lép. ix. p. 22, Uran. t. 1. f. 2 (♂)<sup>6</sup>.

*Coronidia leachii*, Westw. Trans. Zool. Soc. x. p. 540, t. 88. f. 11<sup>7</sup>.

*Hab.* MEXICO (*Hartweg*<sup>5 7</sup>); GUATEMALA, Coban in Vera Paz (*Conradt*), San Gerónimo (*Champion*); PANAMA, Chiriqui (*Ribbe*), Volcan de Chiriqui 3000 to 4000 feet (*Champion*).—BRAZIL<sup>1 2 6 7</sup>.

Mr. Champion captured a good series of specimens of this insect at San Gerónimo. It varies considerably in size, one of the examples from Chiriqui being hardly more than half the size of some of those from Guatemala. From Guatemala I have both sexes before me; they clearly prove that Guenée was wrong in supposing that *C. leachii* was the male of the yellow-banded *C. japet*, the markings of the wings scarcely differing in the two sexes.